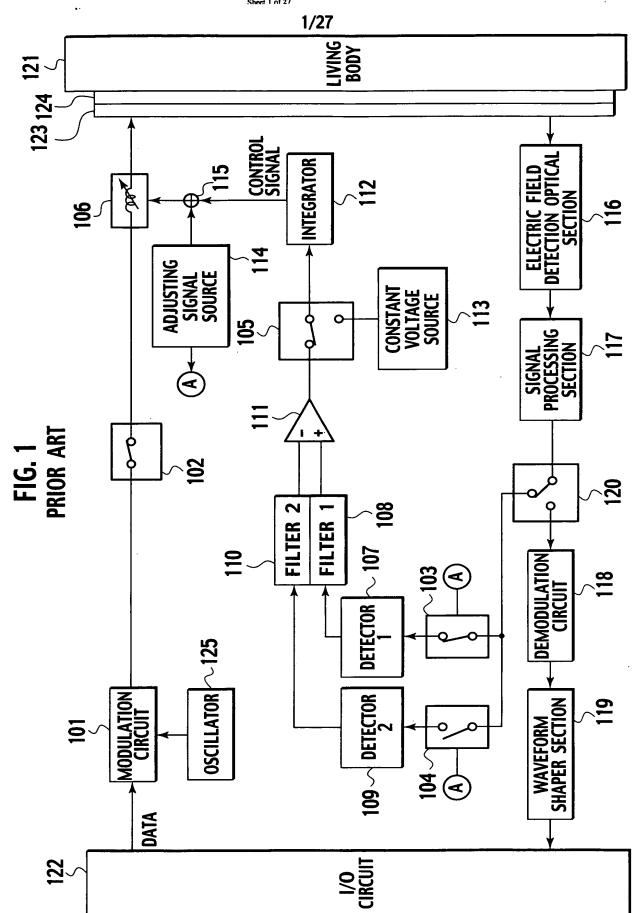
Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the

Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.

adjusting method, a transmitting m Attorney Docket: 44471/317873 Attorney of Record: Brenda O. Holmes Phone: 404.815.6500 Sheet 1 of 27



Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005

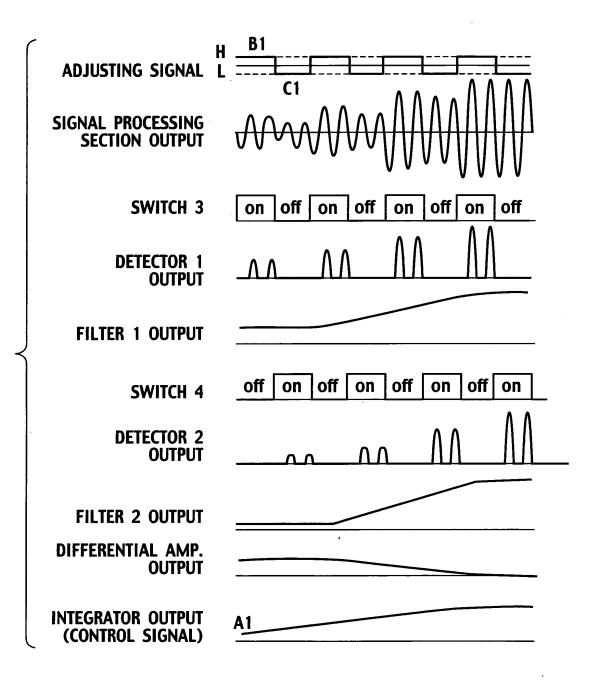
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.

Attorney Docket: 44471/317873 Attorney of Record: Brenda O. Holmes Phone: 404.815.6500 Sheet 2 of 27

10/542327

2/27

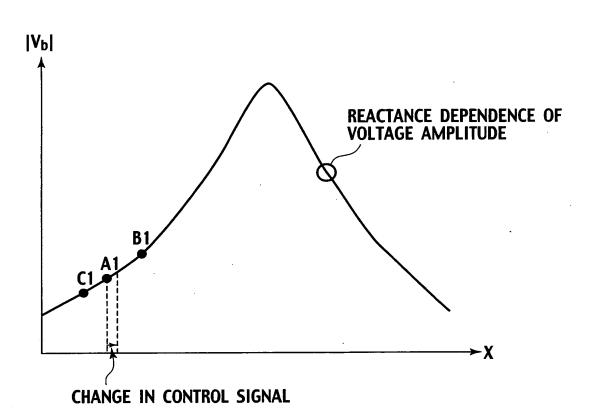
FIG. 2A PRIOR ART



Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.*
Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheer 3 of 27

3/27

FIG. 2B **PRIOR ART**



Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the
reactance adjuster, a signal processing circuit suitable for use in the
reactance adjuster, the transceiver, and the transmitter, a reactance
adjusting method, a transmitting method, and a receiving method.

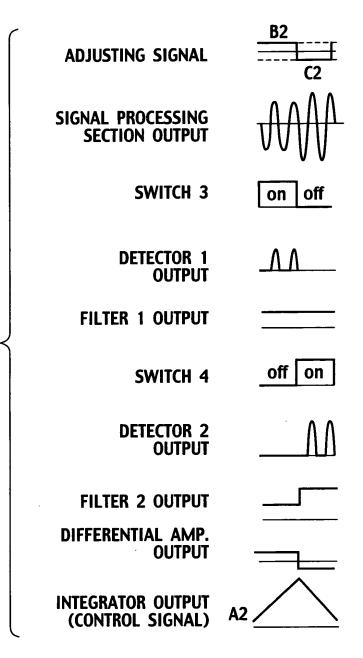
10/542327

Attorney Docket: 44471/317873 Attorney of Record: Brenda O. Holmes Phone: 404.815.6500 Sheet 4 of 27

4/27

FIG. 3A

PRIOR ART



Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.
Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 5 of 27



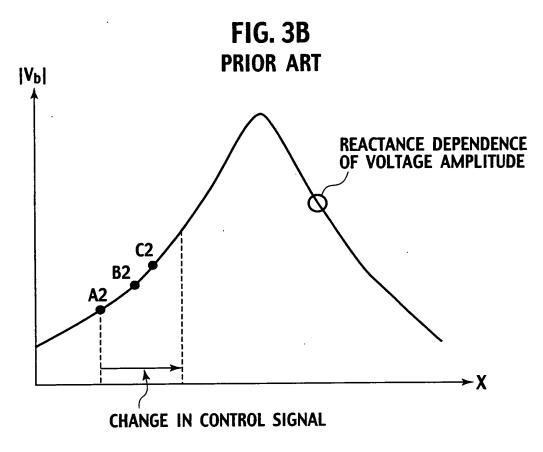


FIG. 4 **PRIOR ART** V_{dd} **SW1** UP SIGNAL O **OUTPUT** 241 **DOWN SIGNAL** O

121

152

Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005

Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method. Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes

Phone: 404.815.6500
Sheet 7 of 27 Title: A reactance adjuster, a transceiver and a transmitter using the

10/542327

7/27

FIG. 6A

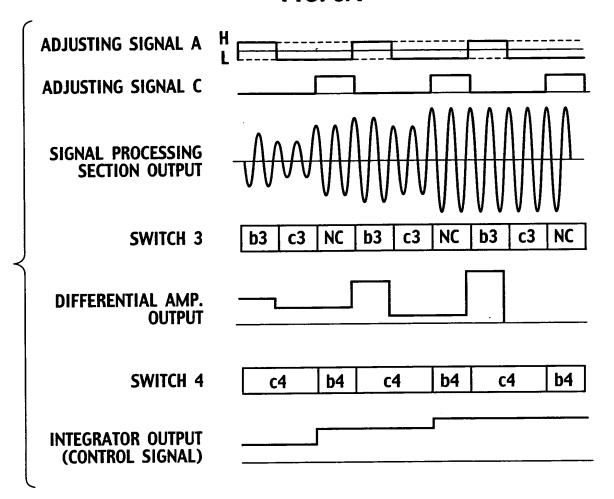


FIG. 6B **DETECT ELECTRIC FIELD** AMPLITUDE AT THE TIME OF HIGH REACTANCE **DETECT ELECTRIC FIELD INTEGRATION** AMPLITUDE AT THE TIME OF LOW REACTANCE

Inventors: Tadashi MINOTANI et al.

Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method. Attorney Docket: 44471/317873
Attorney Of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 8 of 27

10/542327

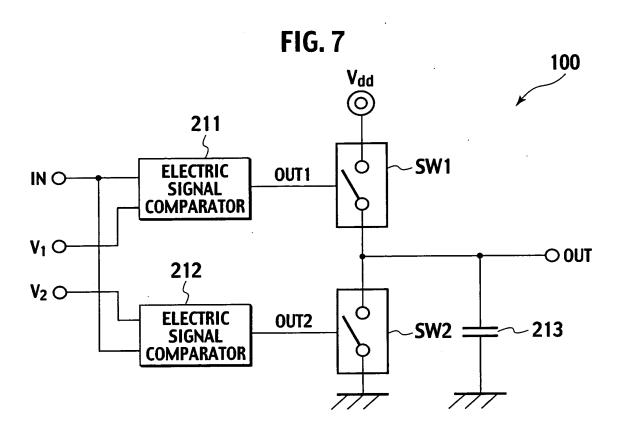
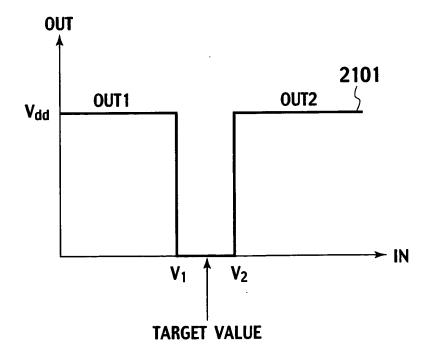


FIG. 8

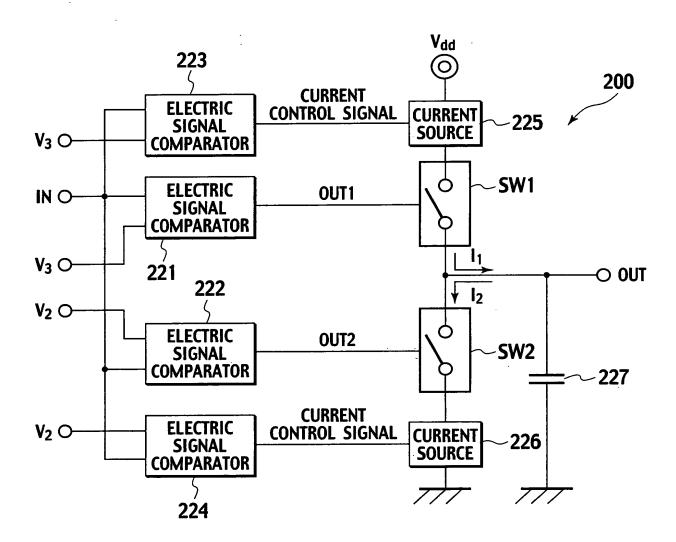


Inventors: Tadashi MINOTANI et al.

Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the Title: A reactance adjuster, a transcriver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transcriver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method. Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 9 of 27

10/542327

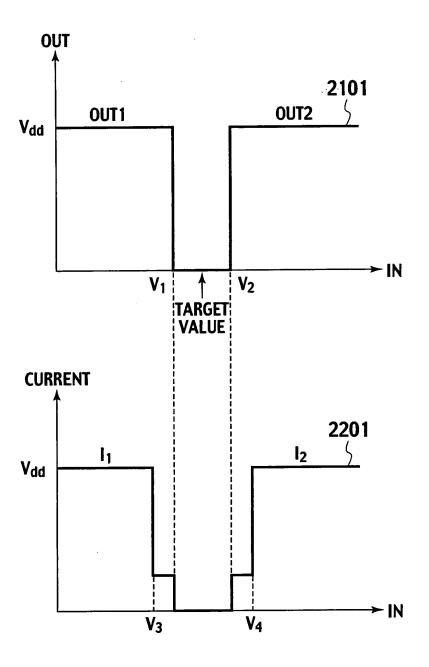
FIG. 9



Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.
Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 10 of 27

10/542327

FIG. 10



Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005

Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.

Attorney Cocket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 11 of 27

10/542327

FIG. 11

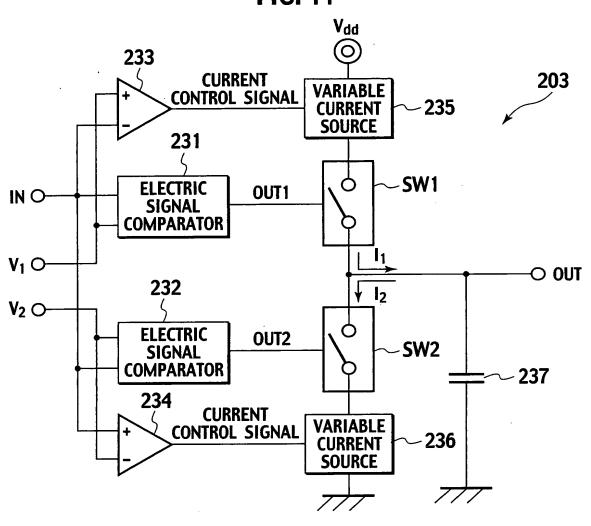
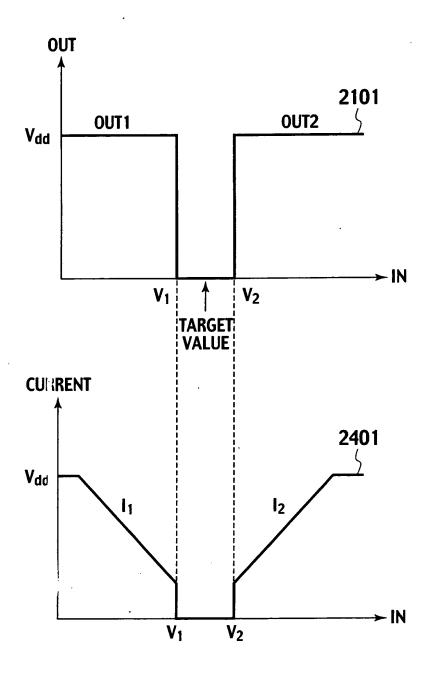


FIG. 12 **CURRENT** 2301 **CONTROL SIGNAL**

Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.
Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 12 of 27

12/27

FIG. 13



Inventors: Tadasin MINUTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.

Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes 10/542327 Attorney of Record: Brenda O. Holmes Phone: 404.815.6500 Sheet 13 of 27 13/27 LIVING , **121** CONTROL DETECTION OPTICAL SECTION **7**20 5 VOLTAGE SOURCE TA nM0S2 T nM0S1 pM052 T DWOS1 SIGNAL PROCESSING SECTION <u>9</u> **ADJUSTING SIGNAL A** ADJUSTING SIGNAL C a2 b2 FIG. 14 + ADJUSTING SIGNAL B ه. م J **空**々 ඉ යි \mathbb{Z}^{\flat} DEMODULATION **ADJUSTING DETECTOR** SIGNAL SOURCE FILTER WAVEFORM SHAPER SECTION <u>∞</u> AODULATION CIRCUIT **OSCILLATOR** 122

Inventors: Tadashi MINOTANI et al.

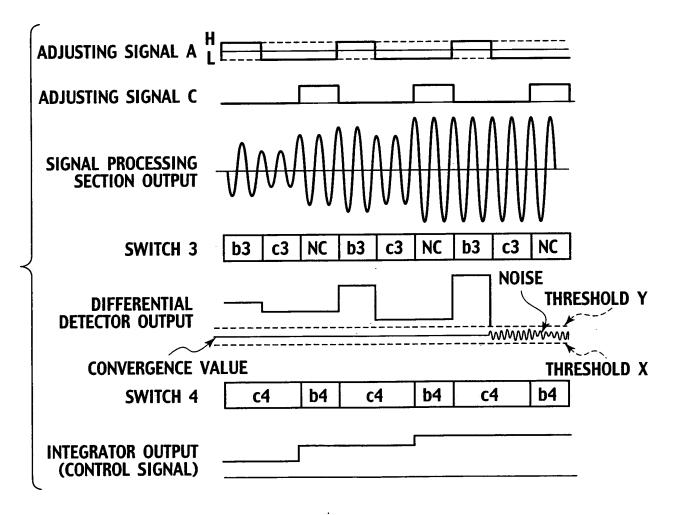
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method. Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 14 of 27 Title: A reactance adjuster, a transceiver and a transmitter using the 10/542327 14/27 LIVING 121 123 124 CONTROL SIGNAL DETECTION OPTICAL SECTION 2 DW0S2 nM0S1 T UMOS2 PM0S1 SIGNAL PROCESSING SECTION VOLTAGE COMPARATOR VOLTAGE COMPARATOR 5 ᇫᡖ \overline{c} **ADJUSTING SIGNAL ADJUSTING SIGNAL** ADJUSTING SIGNAL B DEMODULATION CIRCUIT ბუ 24 చిస్త **ADJUSTING** SIGNAL SOURCE **DETECTOR** FILTER WAVEFORM SHAPER SECTION **OSCILLATOR** ∞ 122

Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005

Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance reactance adjuster, the transcerver, and the transmitter, a reactance is adjuster, the transmitting method, and a receiving method. Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 15 of 27

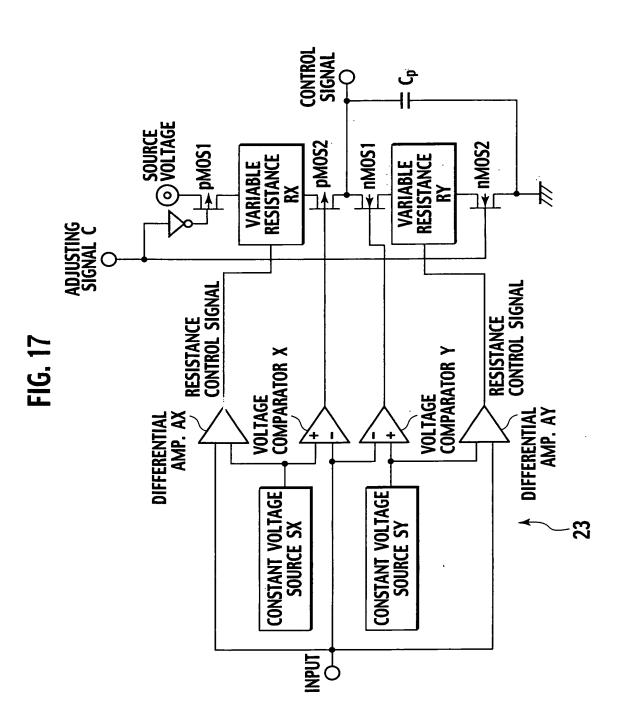
10/542327

FIG. 16



Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.
Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Hohmes
Phone: 404.815.6500
Sheet 16 of 27

10/542327

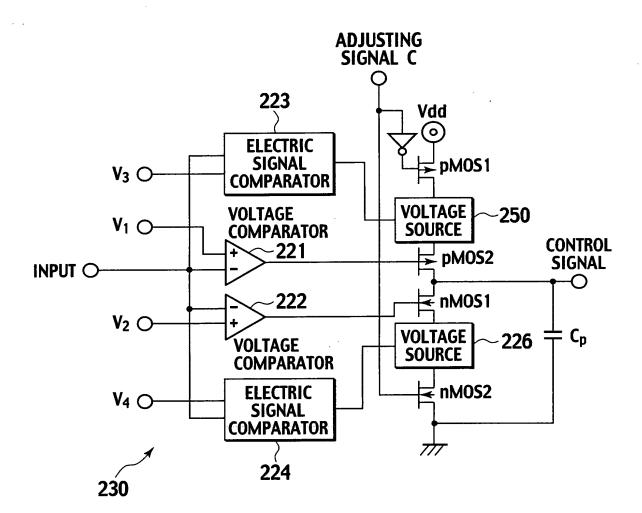


Inventors: Tadashi MINOTANI et al.

Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.
Attorney Docket: 44471/317873
Attorney of Record? Brenda O. Holmes
Phone: 404.815.6500
Sheet 17 of 27

10/542327

FIG. 18

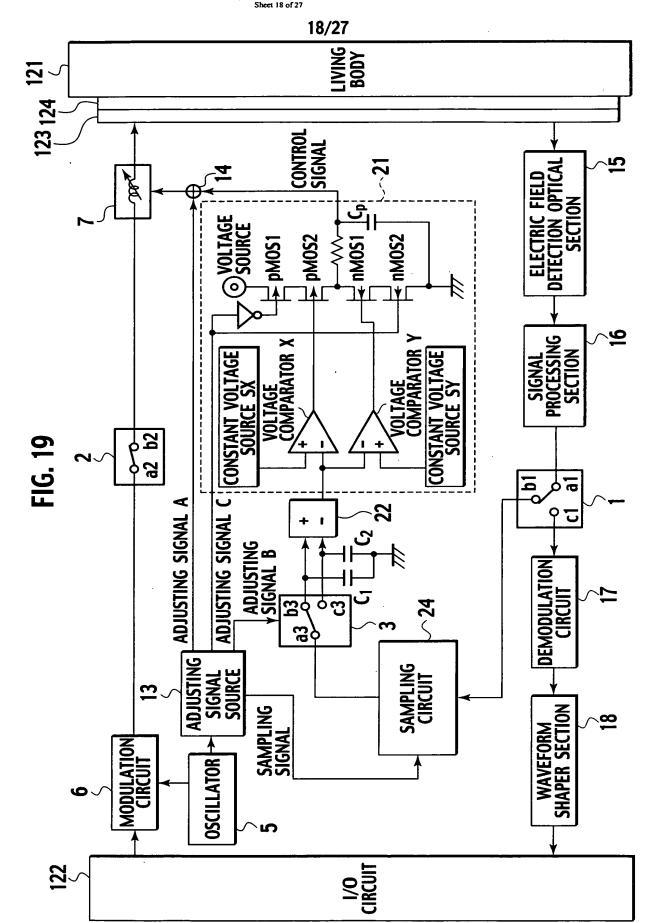


. . .

Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method. Attorney Docket: 44471/317873

Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500

Sheet 18 of 27

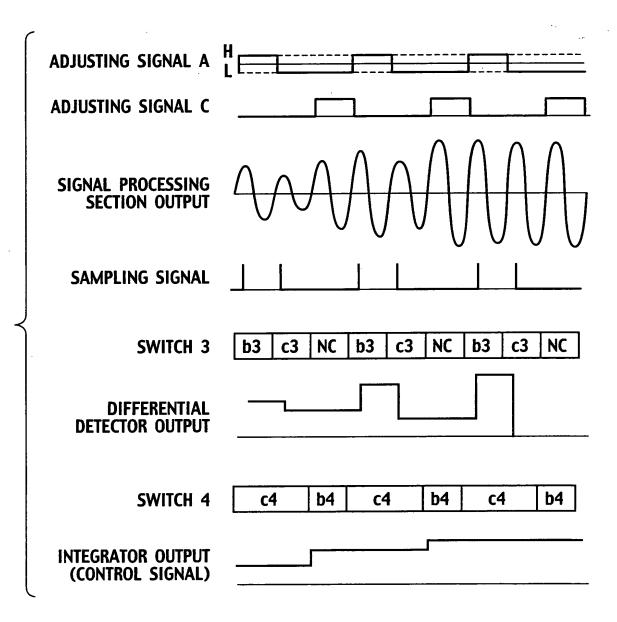


Inventors: Tadashi MINOTANI et al.

Inventors: Tadashi MINOTAN1 et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.
Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500

10/542327

FIG. 20



Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the

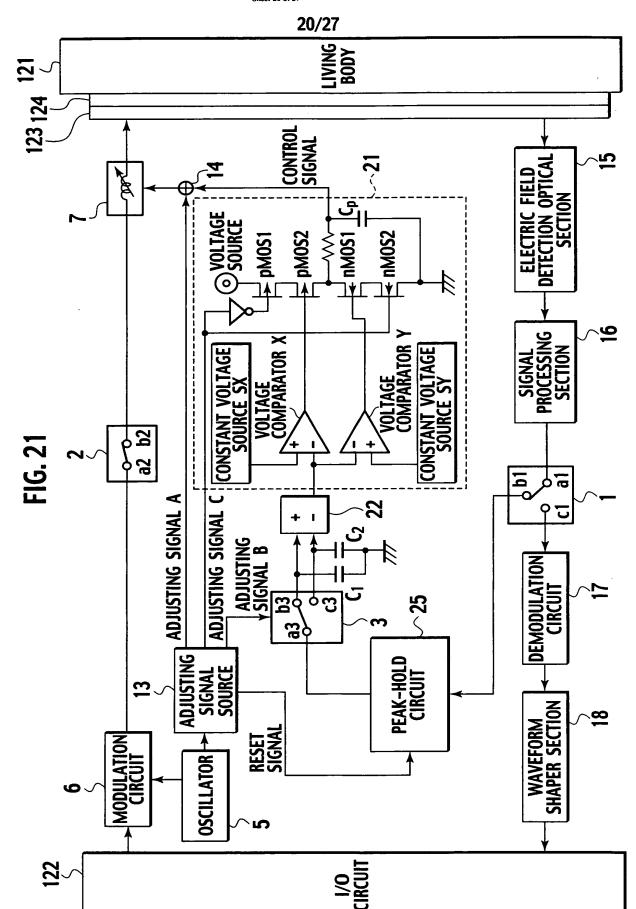
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.

Attorney Docket: 44471/317873

Attorney of Record: Brenda O. Holmes

Phone: 404.815.6500

Sheet 20 of 27



Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the
reactance adjuster, a signal processing circuit suitable for use in the
reactance adjuster, the transceiver, and the transmitter, a reactance
adjusting method, a transmitting method, and a receiving method.

Attorney Docket: 44471/317873 Attorney of Record: Brenda O. Holmes Phone: 404.815.6500 Sheet 21 of 27 10/542327

FIG. 22

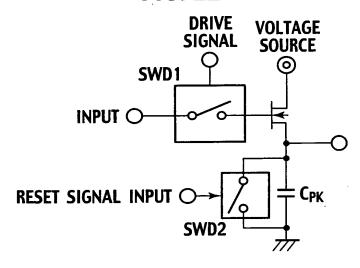
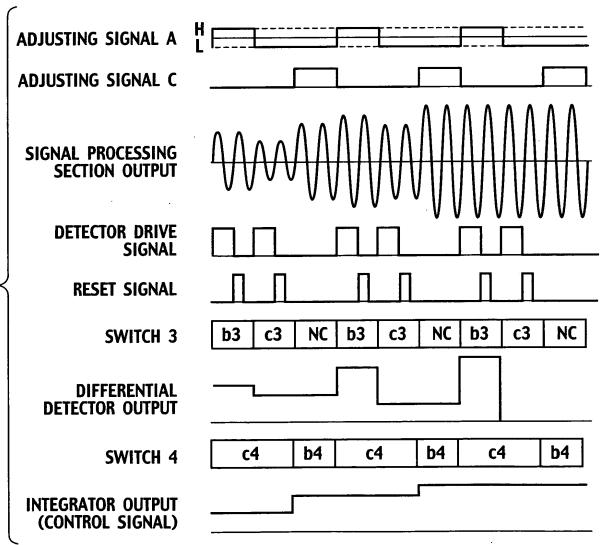


FIG. 23



Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005 Title: A reactance adjuster, a transceiver and a transmitter using the Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method. Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 22 of 27 101542327 22/27 LIVING 121 123 124 CONTROL SIGNAL ELECTRIC FIELD DETECTION OPTICAL **SECTION OVOLTAGE SOURCE ≥** pM0S2 ™0S1 T UMOS2 TAL DM0S1 SIGNAL PROCESSING SECTION VOLTAGE COMPARATOR VOLTAGE COMPARATOR) CONSTANT VOLTAGE ADJUSTING SIGNAL C CONSTANT VOL FIG. 24 **a**2 Ď 2 **ADJUSTING SIGNAL A** Q \overline{c} ADJUSTING SIGNAL B DEMODULATION . 도 ბუ ස_{ද්} PEAK-HOLD/ ADDER-CIRCUIT **ADJUSTING** SIGNAL SOURCE DETECTOR DRIVE SIGNAL SHAPER SECTION RESET SIGNAL Q WAVEFORM 40DULATION CIRCUIT **OSCILLATOR** RESET SIGNAL R

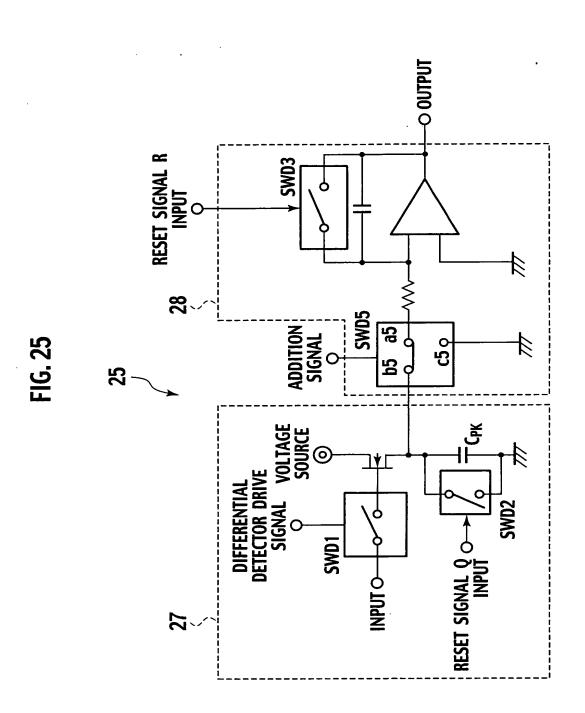
122

Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method. attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 23 of 27

Juds

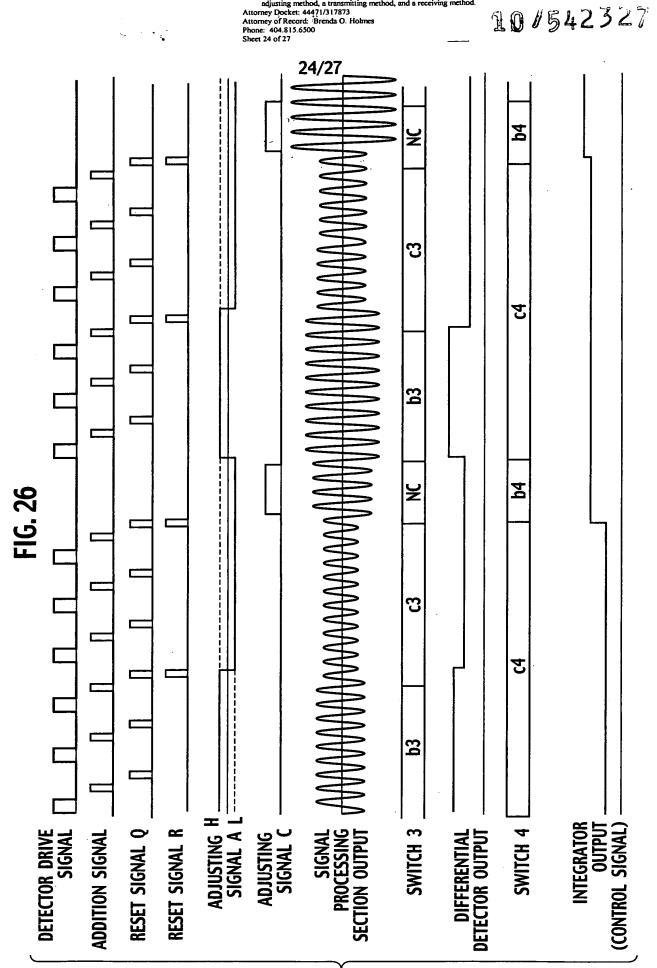
6

10/542327



Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005 Title: A reactance adjuster, a transceiver and a transmitter using the

reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance reactance adjuster, the transceiver, and the transmiter, a reactance adjusting method, a transmitting method, and a receiving method. Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 24 of 27



Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.

Attorney Docket: 44471/31873 10/542327 Attorney of Record: Brenda O Holmes Phone: 404.815.6500 Sheet 25 of 27 25/27 5008 25/27 CONTROL SIGNAL 32 INTEGRATOR CONSTANT VOLTAGE SOURCE 26 **ADJUSTING SIGNAL A** ADJUSTING SIGNAL C 323 a2 b2 ADJUSTING SIGNAL B **昭**夕 ස_්ද ADJUSTING SIGNAL SOURCE **DETECTOR** FILTER **>** <u>)</u> **OSCILLATOR**

122

Inventors: Tadashi MINOTANI et al. Filed: July 13, 2005 Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method. Attorney Or Record: Brenda O. Holmes Phone: 404.815.6500
Sheet 26 of 27 10/542327 26/27 SNIAII CONTROL SIGNAL INTEGRATOR **4**0 **ADJUSTING SIGNAL A** PRE-STAGE PROCESSING SECTION 70 3 **四**夕 ස_් දි ADJUSTING SIGNAL SOURCE DETECTOR FILTER \mathcal{C}_{ϕ} **OSCILLATOR** RECEIVING SECTION

Inventors: Tadashi MINOTANI et al.
Filed: July 13, 2005
Title: A reactance adjuster, a transceiver and a transmitter using the reactance adjuster, a signal processing circuit suitable for use in the reactance adjuster, the transceiver, and the transmitter, a reactance adjusting method, a transmitting method, and a receiving method.
Attorney Docket: 44471/317873
Attorney of Record: Brenda O. Holmes
Phone: 404.815.6500
Sheet 27 of 27

10/542327

